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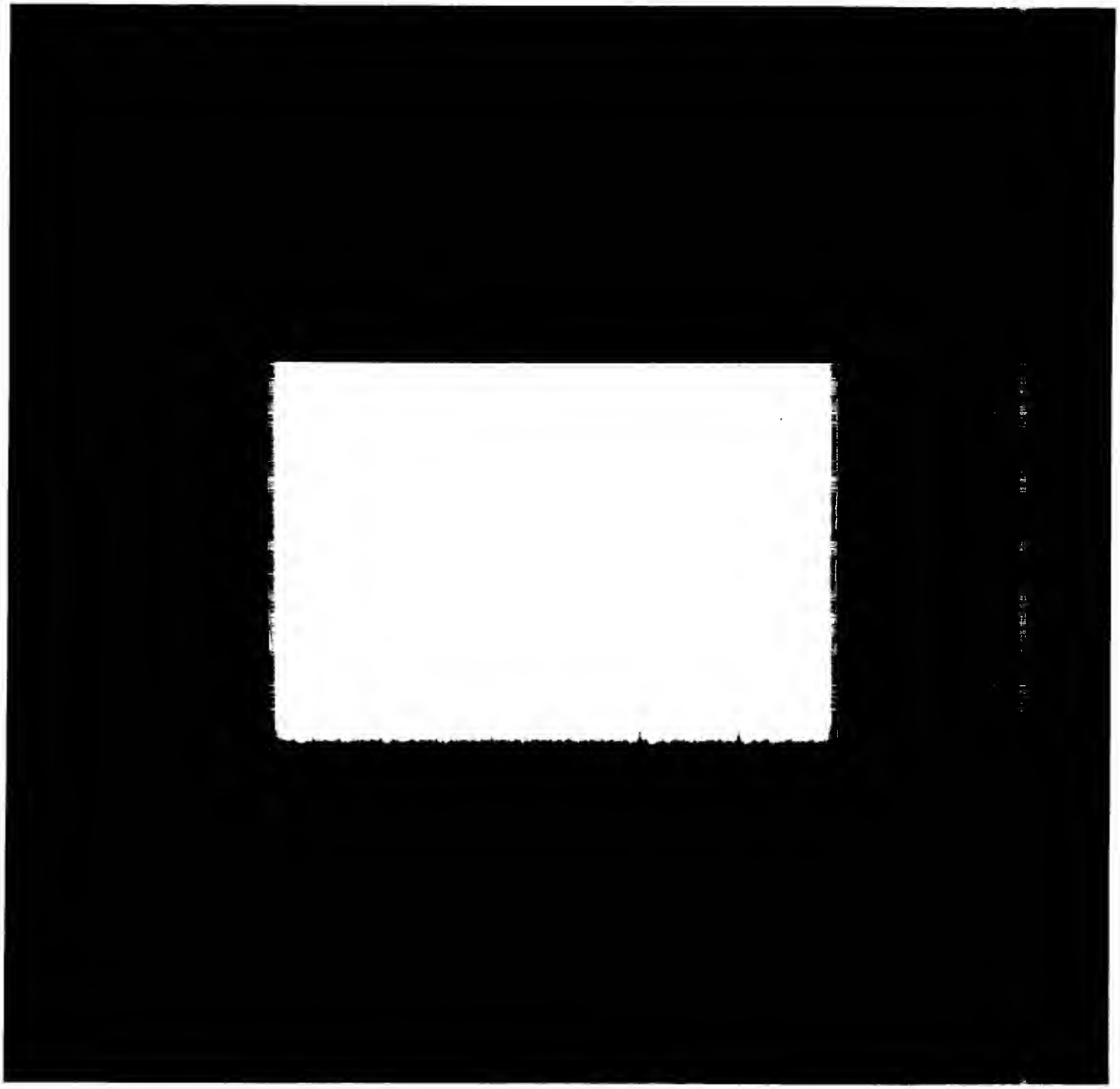

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Preliminary Draft

Technical Report No. 349

AN OVERVIEW OF INTELLIGENCE COMMUNITY AUTOMATIC DATA PROCESSING

by

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15 August 1977

Prepared for
Director of Central Intelligence
Under
Contract 77-M-100400

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ABSTRACT

This report summarizes the results of a brief assessment of Automatic Data Processing (ADP) activities within the Intelligence Community (IC), to identify promising avenues for future improvements.

Users needs and commonality between hardware and software systems are reviewed, and some alternative concepts are presented for data base management systems. Finally, policy and technical issues are identified together with means for achieving a Community-wide information system.

SUMMARY

The rapid growth of the Intelligence Community and the orders of magnitude expansion of Automatic Data Processing within elements of the IC have promoted decentralized planning and management of software and hardware systems and data bases. Many of these systems have common characteristics, and in that sense are duplicative. It is believed that these represent opportunities for improved efficiency and cost saving.

For example, the prevalent IC ADP systems perform communication, collection, processing and production functions. Some of these systems possess the characteristics of data base management systems (DBMS), and are therefore considered amenable to some consolidation, commonality and Community-wide accessing. The CIA SAFE and DIA ADISS Systems fall into this general category; in addition, 6 other major systems of this type were quickly identified in this brief overview, and we understand that there may be 30 such IC systems alltold. Hence the current Congressional interest in SAFE/ADISS may in fact only be focused on the tip of the iceberg!

This paper presents a few alternative concepts for developing broader based, Community-wide DBMS, merely to illustrate approaches and associated advantages/disadvantages of each. Detailed cost-benefit analyses are needed to home in on system(s) that smoothly transition from the maze that exists today, to more efficient, centralized solutions for the future. These analyses should be part of an organized effort which addresses the feasibility and value of adopting or developing a Community standard data base management system. This effort also extends beyond the SAFE/ADISS question, because with time the existing "home grown" DBMS will be outdated technically and will require updating and replacement.

Fundamental to achieving Community-wide systems is the resolution of a family of policy and technical issues which are complex, and have mostly been treated piecemeal in the past. These relate to sharing data bases; agency access; technical data standards and languages; interfaces and security. Specifics are discussed in Section IV.

An area of immediate concern to the DCI is a timely and well thought out response to the Senate Select Committee on Intelligence. However, this response is only a subset of broader questions of Community-wide structuring, integration, planning and management. The SSCI presentation can be viewed as a leap-frogging opportunity to generate an agreed-upon roadmap for short-, medium-, and long-range IC ADP planning. For example, creating a centralized management structure would be an earnest of the DCI's intent to provide positive control over future planning and utilization of Community ADP resources.

Regretably, resources on hand at the IC Staff level appear woefully inadequate for the SSCI effort and certainly for any broad Community planning function. Some specific steps need to be undertaken, perhaps providing some help for handling the most immediate problems, followed by creation of a new, higher level management mechanism to address longer term ADP integration, technical, budgeting and planning functions.

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I. INTRODUCTION

1.1 This report summarizes the results of a brief assessment of Automatic Data Processing (ADP) activities within the Intelligence Community (IC). The work was performed for the Director of Central Intelligence under Task No. 4 of Contract 100400.

BACKGROUND

1.2 The Intelligence Community utilizes automatic data processing systems extensively to collect, process and produce National Intelligence. In the past, each organization in the Community has independently planned, managed, and budgeted for data processing related activities and computer hardware generally without regard to the needs or existing capabilities of the Community as a whole. The evolution of ADP and telecommunications within the Community has resulted in the development of many different computer software systems, some of which have duplicative characteristics and most of which are nonstandardized. This historical lack of centralized ADP management leadership and planning has resulted in the following:

- Duplication of technical efforts, which have partially resulted from the rapid growth of ADP in the Community

- Limited and questionable accountability for resource expenditures (no effective ADP cost or utilization/analysis)

- Limited Community planning for system interfaces with only some interoperability and interconnectivity between systems

- Lack of effective Community standards for security, data elements and files, and system performance (despite efforts of the Information Handling Committee formed to promulgate standards)

- Proliferation of diverse computer hardware, line protocols, and user terminals.

1.3 Recognizing these deficiencies, the Director of Central Intelligence in the "National Foreign Intelligence Program (NFIP) and Resource Guidance: FY 79-83" has expressed his determination that Automatic Data Processing and Telecommunications are major issues that must be dealt with from a total Community point of view. Other government organizations have made similar observations: the Senate Select Committee on Intelligence report of 19 May 1977 noted ADP resource activities need more careful coordination, direction, and interagency planning; the House Appropriations Committee report of 21 June 1977 was critical of the planned expenditures of fiscal resources for agency systems (CIA SAFE and DIA ADISS); and the Director of the Office of Manpower and Budget stated that the Intelligence Community should develop a coordinated approach to the development of computerized data bases that maximizes the rapid and free flow of information vital to the quality and timeliness of the intelligence product and minimizes the duplication in both data files and ADP equipment.

1.4 More specifically, the SSCI requested that DCI prepare a comprehensive report and long-range plan for coordinated acquisition and utilization of IC ADP resources by November 1977. Types of detailed information requested include trend data and analysis of ADP costs from FY 70 - 79 by agency; identification and description of computer assets and use; near-term replacements or upgrades; identification of data files and interagency exchange; projected major problems, priorities and new initiatives, and a broad organizational plan directed at improving coordination of ADP hardware acquisition, software and data base development, and interagency data base access. Efforts are currently underway in IC Staff and DoD to generate inputs for the DCI response. (As an independent observation, it is believed that the Information Handling Division of the IC Staff which is responsible for the DCI response, including development of a Community-wide plan, is totally understaffed for responsibilities of this magnitude at only four persons.)

OBJECTIVES AND SCOPE

1.5 The objectives of this study are to identify areas of commonality in present or contemplated Intelligence Community ADP utilization and potential avenues for avoiding or eliminating duplication, as inputs for future planning.

1.6 The scope of the project was intentionally broad to incorporate the Community as a whole with the depth limited to what might be accomplished with about 1 man-month of research effort. Hence the emphasis was on developing an overview of Community ADP usage, rather than in-depth analyses of specific problem areas. The approach used to gather information for this report involved reviewing written material and interviewing individuals within the Community.

CONTENTS

1.7 The next section of the report reviews user needs and commonality between ADP systems. Section III discusses some alternative concepts for data base management systems, and the last section examines some relevant issues for achieving a Community-wide information system.

II. USER NEEDS AND COMMONALITY

MARKET

2.1 The rapid growth of the Intelligence Community has contributed to the duplicative and nonstandardized nature of ADP activities within the Community. 1/ The total fiscal funding for ADP

STATINTL

[redacted]

search and experimentation. 2/

2.2 The volume of available information within the Community is rapidly increasing. Advanced collection systems have exponentially increased the availability of information. To effectively handle this information, technology must be exploited to ensure the analyst can access, extract, manipulate and output data requested in a timely manner. The Defense Communication Agency has developed a projection for the level of transmission of data on AUTODIN II. This projection, displayed in Figure 2.1, indicates the magnitude of the increasing exchange of Community information--a fifty-fold increase in the period '72 to '76, and

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1/ The number of intelligence organizations has increased from 3 (FBI, Army's G-2, and Office of Naval Intelligence) in 1941 to over 20 today.

STATINTL 2/ The Information Handling Committee's budget used for Community planning, research, and experimentation is less than

[redacted]

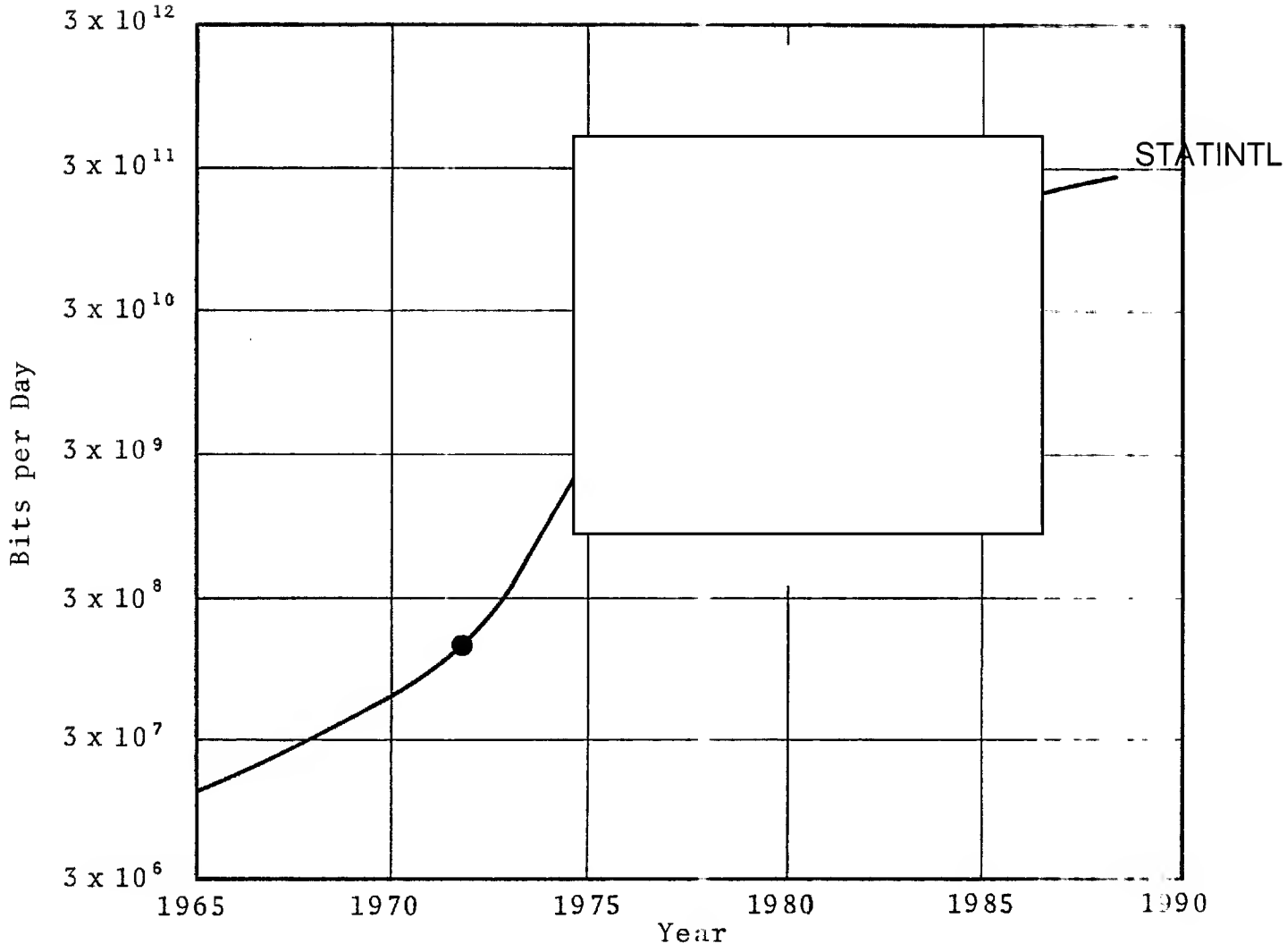

FIGURE 2.1

PROJECTED DAILY DEFENSE COMMUNICATION SUPPORT
FOR DATA TRAFFIC*

25X1A [redacted] AUTODIN II," Proceedings of Department of Defense Intelligence Information System Managers Conference, 23-30 September 1976.

another twenty-fold jump by 1984, with accompanying growth in the numbers of terminals and computers.

ADP SOFTWARE SYSTEM COMMONALITY

2.3 Categories of software systems were examined to identify a select group of ADP software systems with commonality among Community organizations. This cursory look at systems with duplicative characteristics centered around systems with characteristics of data-base-management-systems (DBMS). Table 2.1 lists systems that were identified and categorized according to: collection systems (of which only imagery systems were reviewed); communications systems; processing systems; and production systems. The processing and production categories contained the systems with data-base-management-like characteristics.

2.4 Because of satellite costs and the relatively short time frame during which computerized imagery has existed, the imagery collection systems have evolved, for the most part, to fulfill specific Community needs. Communication systems (networks) already involve a large number of Community users. Table 2.2 provides a brief description of imagery collection and communications systems.

2.5 A more suitable target for this analysis is the proliferation of similar data base management systems within the processing and production categories. Table 2.3 provides a brief description of systems that are in the processing and production categories that potentially possess duplicative characteristics. While this list may include all types of systems, it probably represents only a fraction of the total number of systems.

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DBMS USER REQUIREMENTS

2.6 By reviewing system literature and documentation, a list of user requirements partly common to these DBMS systems was constructed. This list, with refinement, could be used to identify the characteristics of a standard Community DBMS. If standard DBMS's could be developed or adapted to fulfill user requirements, potential savings would result by not proliferating new systems. Table 2.4 contains a description of user functional requirements, summarizing the capabilities provided by all of the systems described in Table 2.3.

TABLE 2.4
USER FUNCTIONAL REQUIREMENTS

DATA MANIPULATION

- Search (indexed or free text)
- Retrieve (browse, keyword, text, content analysis)
- Hold
- Edit
- Output
- Print
- Alert

FILE SUPPORT FUNCTIONS

- Maintain (create, change, delete, replace, add)
- Compose (page, scroll, insert, change, delete, move, print)
- Storage, retrieval, and execution of past search strategies

COMPUTATIONAL FUNCTIONS

- Unique processing functions, simulation languages, APL, LISP, FORTRAN
- Statistical functions
- Curve fitting
- Mensuration and isometrics
- Models (heuristic, econometric, simulation)

COMMUNICATIONS FUNCTIONS

- Route (files and messages)
- Alert

USER AIDS

- Computer aided instruction
- Help function
- Diagnostics and error messages

III. SOME ALTERNATIVE DATA BASE MANAGEMENT SYSTEM CONCEPTS

STANDARD DBMS

3.1 SAFE of the CIA and ADISS of the DIA are two systems being planned that are currently receiving major attention and discussion. From the relevant literature prepared for these two systems (although ADISS does not have user requirements completely defined), it appears that the two systems have a number of standard DBMS characteristics. This is alarming since several other systems, identified in Table 2.3, also have standard DBMS characteristics, and the table contains only a small number of highly visible DBMS systems. The COINS Project Office estimates that there are more than 30 DBMS-like systems operational in the Community today. Many of these systems are "home-grown" and will eventually come up for replacement as the state-of-the-art advances.

3.2 The issue then becomes obvious. First, does the Community need all of these DBMS systems, and second, can a Community standard be developed or adapted and implemented? It is believed that the Community does not need all of these different DBMS systems. Organizations typically argue that their applications are unique--when in fact they are not. The feasibility of a Community standard for a DBMS or a set of DBMS systems is worthwhile investigating.

3.3 The Department of Commerce has on several occasions sponsored a Conference of Data Systems Language (CODASYL) and this

organization has been active in the development of a common Data Description Language. Before additional retrieval languages are developed within the Community and the magnitude of the ADP commonality/multiple language problem increases, the adaptation of CODASYL-like standards should be investigated.

3.4 Ten years ago there were only a handful of specialized retrieval languages, usually only suited for one type of hardware. Today there are many "good" data base management systems and retrieval languages. Before another DBMS system like SAFE or ADISS is developed, "off-the-shelf" DBMS systems should be investigated. There may be a significant opportunity to reduce costs by building on these languages and modifying only part of the existing larger DBMS systems. In developing or adapting new DBMS systems, it is clear that the Community does not need the following:

- Unique, inflexible and application-oriented data base systems that are limited to narrow functional use
- Procedures that are oriented toward ADP-inclined personnel
- Language not optimally designed for non-ADP-trained analysts
- Unique DBMS applicable only to one or two types of hardware.

ALTERNATIVE SYSTEM CONCEPTS

3.5 Some alternative conceptual designs for both the networking of the hardware and the software interface are examined briefly below. Axiomatic to this investigation is the belief that a

"single united communications network" and a "common language to access information" has the potential of contributing significantly to Community efficiency and effectiveness.

Network Alternatives

3.6 There are at least three network alternatives that should be considered, AUTODIN II, COINS, and IDHSC. A comprehensive evaluation of these three network alternatives is beyond the scope of this discussion, but the following summarizes status and capabilities.

- AUTODIN II. Time estimates place the operation of this network in the CY 82-84 time frame. The network will continue to be supported by Defense Communication Agency (DCA) when it is operational. Since this network is 6 to 8 yr from estimated completion, we can only consider this alternative for the future. However, current design compatibility should be established to ensure that AUTODIN II can be used when it becomes operational.
- COINS. The COINS I network is presently operational, while COINS II is currently being tested. COINS II will use the communication technology developed in the ARPA network, which could provide for secure communication on common carrier lines. COINS has made tremendous strides in providing intelligence analysts with a means to transfer and communicate information on a world-wide basis by linking to IDHSC. A wealth of experience exists both in the knowlege of

technical staff and the management staff. The COINS Project Management Office (PMO) is impressive in its forethought, experimentation, and thorough investigation of alternatives.

- IDHSC. The Intelligence Data Handling System Communication or the Worldwide Intelligence Communications System (WICS) provides DODIIS and COINS users with worldwide communications. This DIA sponsored network currently supports DIAOLS (DIA's data base management system). COINS and WICS II have been coordinated on a technical basis, but there are still major incompatibilities in the communication technology used by each. One problem claimed by IDHSC to have been resolved is the massive interfacing required with CIA, NSA, State, etc.

3.7 The two alternative network technologies for near-term use appear to be COINS and IDHSC, since the time estimate for AUTODIN II operation is CY 82-84. From this limited analysis, COINS II technology appears the most promising candidate for a near-term solution to a single communication network, if the COINS II tests are successful. The duplicative characteristics of COINS and IDHSC require that both be carefully evaluated to ascertain whether both networks are justified.

Multiple Language Problem

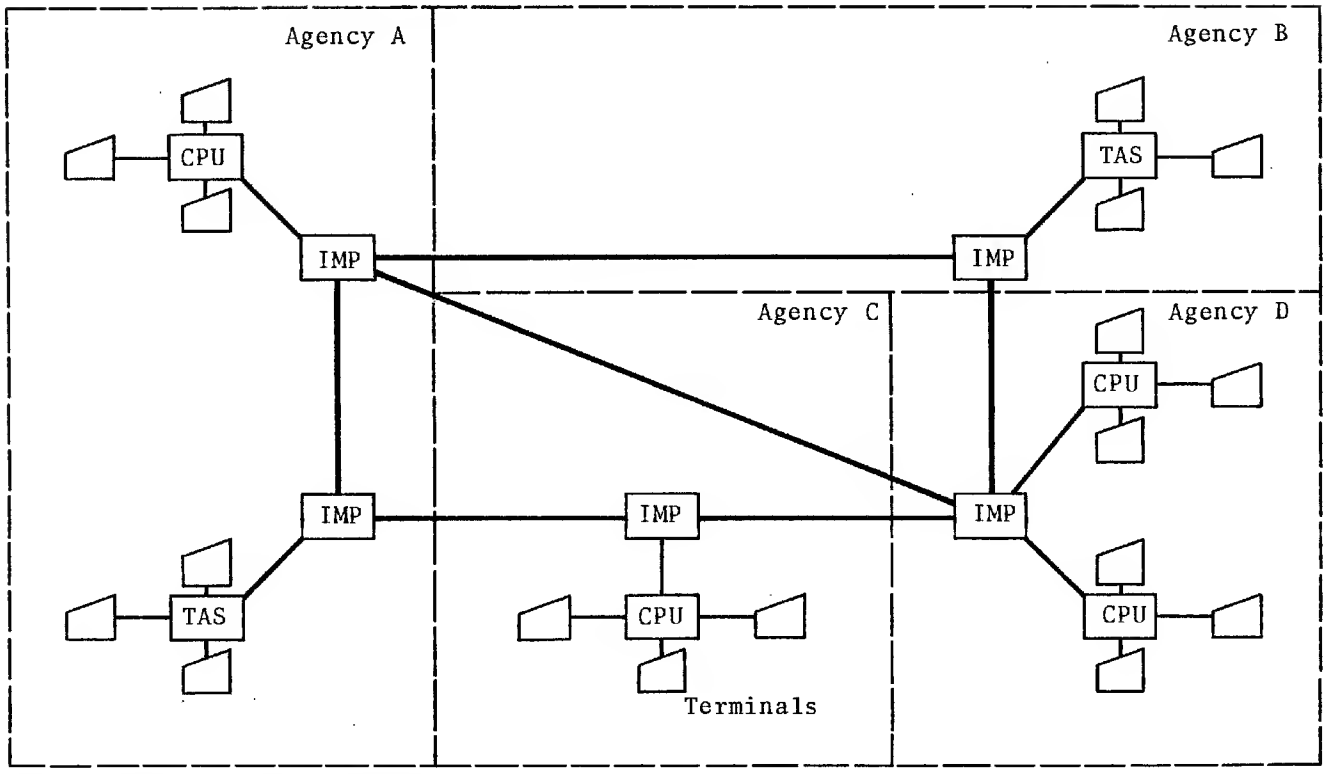
3.8 Alternative conceptual system (hardware and software) designs can be identified regardless of the decision to use COINS, IDHSC, or some other third undetermined network alternative.

But the experience and "lessons learned" in COINS and IDHSC should be used as a basis for long-term improvements in information handling and processing.

3.9 The changing economics of hardware, the outlook for data transmission, and the large volume of data contained within the worldwide intelligence community combine to suggest distributed system architecture. Distributed data base systems are attractive where data are generated at several locations and are needed there for further processing, yet some applications require data stored at other locations as well. Distributed data base systems provide the ability for parts of Community data to be managed by several processors and provide the analyst with the ability to view data from a single location and not be concerned about the geographical location of the data. COINS II and IDHSC are being designed using the distributed data base concept. Figure 3.1 conceptually displays the COINS hardware network.

3.10 There are technical problems associated with distributed systems that may be significant ("lockout" and "deadlock") and these issues will require a detailed knowledge of the hardware at each system node. Using the distributed data base concept, a few alternatives are identified below as means for establishing a common language to access information.

3.11 The multiple language problems currently facing COINS II or the DODIIS/IDHSC network are displayed in Figure 3.2. A user enters his information requests/commands via a computer terminal. That terminal is connected to computer hardware at location A. If the data requested is resident at location "A," then DBMS I is used to access the data files. But, if the user wants to access files at location "B,", then DBMS II must be used to access data files. This multiple language problem is compounded each



TAS = Terminal Access System
IMP = Interface Message Processor
CPU = Central Processing Unit

FIGURE 3-1

COMMUNITY ON-LINE INTELLIGENCE SYSTEM (COINS II)
DISTRIBUTED ARPA-TYPE NETWORK

time a new node is added with a different language (some agencies have multiple languages).

Alternative 1: Standard DBMS

3.12 One alternative for solving this problem is to replace all data base management languages with a Community standard DBMS language. Figure 3.3 displays a conceptual view of this alternative.

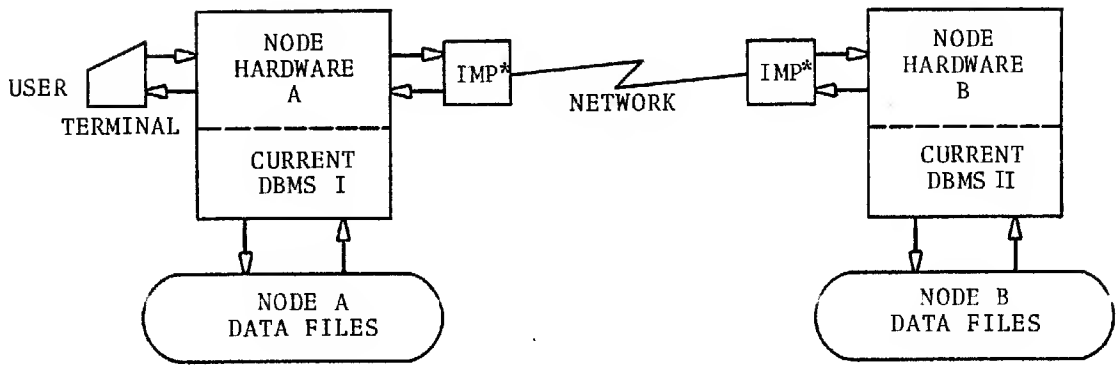
3.13 The advantages and disadvantages of this approach are listed below.

Advantages	Disadvantages
1. Standard DBMS	1. Costly solution
2. Single language	2. Long conversion time likely
3. File sharing and processing possible	3. Drain on personnel resources
	4. Bound to one DBMS architecture
	5. Major impact on users

Alternative 2: Centralize Community Files

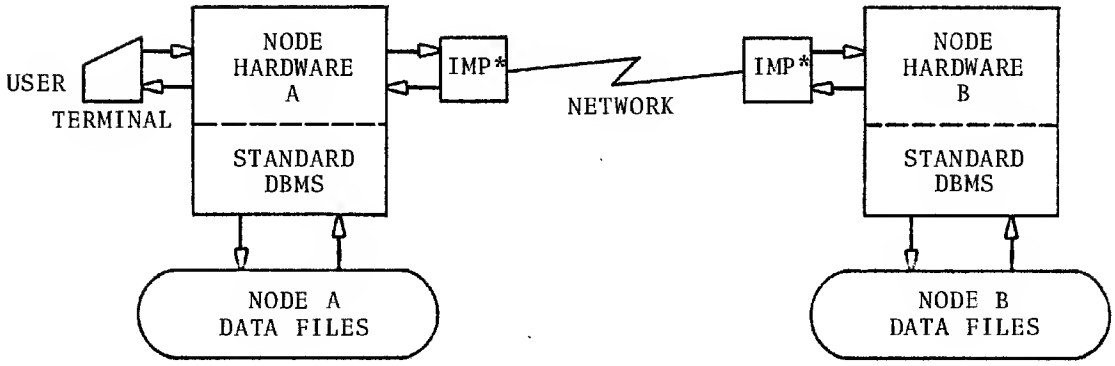
3.14 Another alternative for solving this problem is to centralize all Community files at one node of the network (probably using current hardware). Figure 3.4 displays a conceptual view of this alternative, whose advantages and disadvantages are described below.

Advantages	Disadvantages
1. Community standard DBMS	1. Provide single failure point
2. Maximum of two languages	2. Duplicate files
3. Centralized management control	3. Added file conversion and maintenance
	4. Large file size
	5. Identification of files



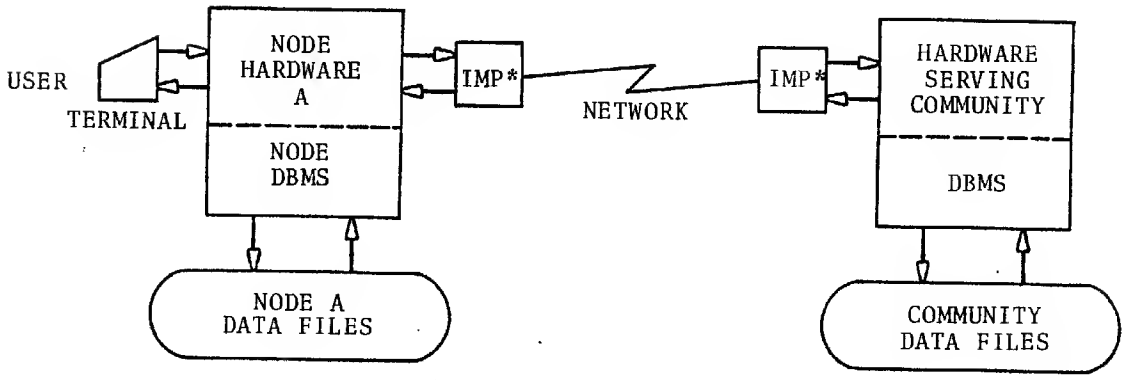
* IMP = Interface Message Processor

FIGURE 3.2
USE OF MULTIPLE LANGUAGES WITH COINS II



* IMP = Interface Message Processor

FIGURE 3.3
ALTERNATIVE 1: STANDARD DBMS



* IMP = Interface Message Processor

FIGURE 3.4
ALTERNATIVE 2: CENTRALIZE COMMUNITY FILES

Alternative 3: Multiple Language Translator

3.15 A third alternative for solving the multiple language problem is to develop a multiple language translator. This alternative, displayed in Figure 3.5, would allow the user to use current node DBMS language as the standard Community language. Advantages and disadvantages are described below.

Advantages	Disadvantages
1. Minimal impact on users	1. Needs multiple language translation packages (potential risk?)
2. Single Community user language	2. Difficult to maintain individual translation packages for each vendor
3. Minimal conversion costs, if no existing files need to be converted	3. Additional personnel required to maintain translation packages

Alternative 4: Multiple Language Translator and Standard DBMS

3.16 This is the last alternative that is presented, although a continuum of alternatives is possible. 1/ Essentially, there is a combination of alternatives 1 and 3, which seems particularly relevant in light of the recent SAFE/ADISS interest and discussion. As part of the development of SAFE/ADISS, a user language must be defined. The characteristics and attributes of the definition of this language could be used to create a multiple lan-

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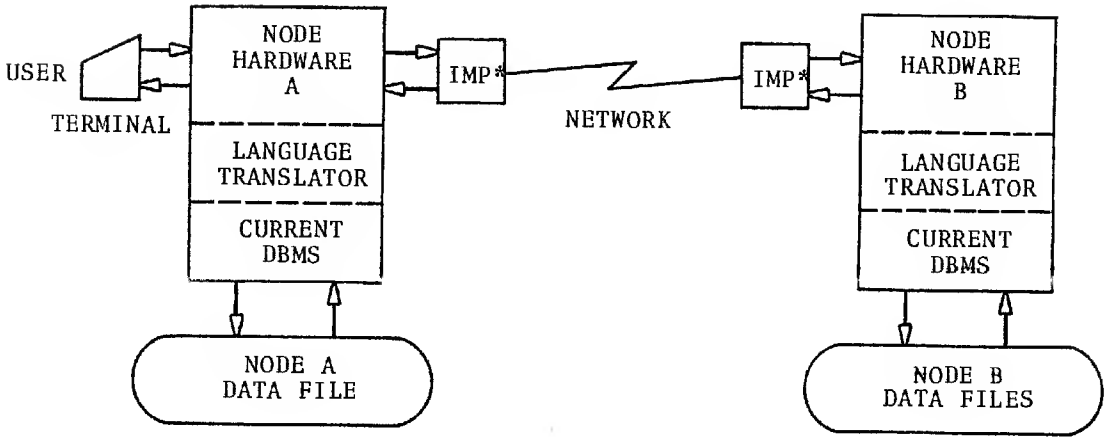
1/ For a more detailed description of alternatives to the multiple language problem (without regard to SAFE/ADISS), see a "Study of Multi-Language Problems in COINS," May 1975, STATINTL [redacted]



* IMP = Interface Message Processor

FIGURE 3.5
ALTERNATIVE 3. MULTIPLE LANGUAGE TRANSLATOR

guage translation package. The actual development of SAFE/ADISS could be directed to the needs of the entire Community and would result in the development of a standard DBMS.

3.17 The advantages and disadvantages of this approach are described below.

Advantages	Disadvantages
1. Single Community language	1. Multiple language translation packages must be developed
2. Community standard DBMS that could be phased in over time and serve as DBMS for SAFE/ADISS	2. Maintenance would be difficult for translation packages, but would phase out over time
3. Minimal conversion costs	3. Additional personnel may be required to maintain translation packages
4. Minimal impact on users	4. Bound to one DBMS architecture
5. File sharing and processing possible	5. Requires strong, central management control

Summary

3.18 The selection of an approach to solve the multiple language and DBMS problem presents a challenge in achieving a reasonable balance between the expected user benefits and associated costs. Therefore, to perform a comprehensive evaluation of the alternatives presented in this section or any others, the costs and implementation schedule associated with each alternative must be developed in detail. However, certain relevant observations can be made. There are a large number of DBMS-like systems within the Commuinity, and these systems will eventually come up for replacement as the state-of-the-art advances. SAFE and ADISS may well be part of what will be a continuing trend to upgrade and replace obsolete "home grown" DBMS systems. As a result, alternative 4 (Multiple Language Translator and a Standard DBMS)

appears to be an attractive compromise because this alternative provides a means to move toward a Community standard while minimizing the impact of change, and eventually evolving toward a standard. However, to refine this approach, in-depth cost/benefit analyses should be performed for these and other possible alternatives. This effort should identify and describe the specific characteristics of the DBMS system and resident hardware as well as describe the costs and benefits associated with each alternative.

IV. COMMUNITY-WIDE INFORMATION SYSTEMS

4.1 Community data, that is, intelligence data needed by more than one organization, is a reality. The set of complex policies and technical problems accompanying this reality must be determined to establish an efficient and effective manner by which to communicate and transfer data within the Community. The concept of Community data has been demonstrated in the Community On-line Intelligence System (COINS), a Community test-bed system that links NSA, CIA, DIA, NPIC, and State, and which can be accessed by world-wide commands. This system currently provides service for 9,000 queries per month on over 65 files. Also, the Department of Defense Intelligence Information System (DODIIS), an evolving DoD Community system, has demonstrated the concept of Community data by providing for the exchange of information on part of over 175 files contained within DODIIS. In fact, 86 billion characters of automated intelligence information (enough for 300 complete sets of Encyclopedia Britannica) are exchanged annually within DODIIS alone. 1/

4.2 Potential cost justification for Community information systems has been demonstrated by COINS. Over 100 million communication transmissions were saved annually in COINS by eliminating 13 NSA reports, most of which were daily or weekly publications. However, this is only a small step in the cost savings that could be realized by the Community. The fact that there are software systems within the Community that have duplicative capabilities

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1/ High, Paul L., Jr., "DoD Automated Intelligence Flow," Proceedings of Department of Defense Intelligence Information System Managers Conference, 26-30 September 1976.

and that fewer systems could potentially serve the Community provides a basis for significant future cost savings.

MAJOR POLICY QUESTIONS

4.3 To lend perspective to the larger problem of coordinating and integrating the ADP planning elements within the Community for the development of a more accessible Community information system, it is important to understand the areas in which policy must be defined for Community ADP activities. For the purpose of the overview, we have identified the following seven areas

- Shared data bases
- Multiple retrieval languages and data base management systems
- Data standards
- Communication network interfaces
- Training and user aids
- Research and experimentation
- Security

Table 4.1 describes specific issues and some alternative approaches associated with each area of major policy. Each of these policy questions is complex and has been addressed to some extent over the past several years by IHC and special subcommittees and study groups. It is believed that to achieve significant benefits of Community-wide efficiency and effectiveness via commonality will require "reasonable" resolution of all of these thorny policy (and related technical) questions.

TABLE 4.1

OVERVIEW OF MAJOR POLICY QUESTIONS

Policy Areas	Specific Issues	Alternative Approaches
Shared data bases	Budget Responsibilities: What organization is responsible for budgeting for Community use of data files and validating the cost/benefit of Community data file?	• Host computer facility • Proponent of data base • Shared with users on a proportionate use basis • Information Handling Committee (IHC) • Community Council (new organization)
	Access & Control Responsibilities: What organization is responsible for ensuring authorized access?	• IC staff • IHC • Proponent of data base • Other group
	Quality & Timeliness of Data: What ensures the accuracy, quality and timeliness of the data?	• Proponent of data base • IHC • Community Council • Other group
Multiple Retrieval Languages & Data Base Management Systems (DBMS)	Community Standards: Should there be a Community standard for retrieval language or DBMS's?	• Single standard • Community guidelines • Multiple standards • No standard
	Maintenance Update & Modification: What organization is responsible for the maintenance required for operational use of these languages/ DBMS's?	• Host computer facility • Community Council • Contractor(s) • DODIIS/COINS
	Multiple Language Translator: Can a multiple language translator be developed?	• No • For some languages • All languages
Data Element Standards	Necessity: Does the Community need data element standards?	• None • For selected areas • For historical and new data files • For new data files
	Policy: Who decides how much standardization?	• Individual agencies • IHC • Community Council

TABLE 4.1 (Cont)

Policy Areas	Specific Issues	Alternative Approaches
Data Standards (cont)	Approach: Given that data standards are required, what approach should be used to create standards?	• Solve technically by developing a cross-walk file • Use a committee to identify data element standards • Use a contractor to propose data element standards • Create a new Community group (in a full-time capacity) to address data standards
	Budget Responsibilities: What organization is responsible for budgeting for Community data standards?	• IC staff • IHC • Others (e.g., Community Council)
Communications Network Interfaces	Management Control: What organization is responsible for defining line protocols and gateway interfaces, and ensuring exchange of technology?	• DCA • IHC • IC staff • Committee of Host Agencies
	Maintenance: What organization is responsible for maintaining interface software?	• Host agencies • Contractors • Interagency working group • IHC
Training and User Aids	Responsibilities: What organization has the responsibility for training Community users?	• IC staff • DODIIS/COINS • IHC • Others (e.g., Info Science Center, CIA) • File sponsors
Experimentation and Research	Management Responsibilities: What organization(s) has responsibility for coordinating & directing overall experimentation & research?	• IHC • COINS • ARPA • IC staff • Community Council • IR&D Council
	Budgetary Responsibilities: What organization(s) has responsibility for budgeting for Community experimentation and research?	• All agencies • Selected agencies • IC staff • IHC • Community Council • IR&D Council

TABLE 4.1 (Cont)

Policy Areas	Specific Issues	Alternative Approaches
Security	Authoritative Source: Current reference material on security for ADP is vague and inadequate. What organization is responsible for developing an authoritative reference that defines security requirements for a transmission over a network and data stored in computer?	• IHC • IC staff • DCA • Individual agencies • Other Community group
	Inspection & Enforcement: What organizational group is responsible for investigating ADP hardware and software (i.e., data base protection, valid "need-to-know" operating system security, etc.)?	• IHC • IC staff • Individual agencies • Technical accreditation group
	Research & Experimentation: What organization is responsible for budgeting for research and experimentation and is tasked to resolve new problems brought on by technological developments?	• IHC • IC staff • DCA • Individual agencies • Other Community groups
	Sharing Community Data: What organizational group is responsible for threat definition, risk clarification, and other security issues associated with the sharing of Community data?	• IC staff • IHC • Other Community group • Individual agencies

4.4 The list of policy issues compresses to the following basic questions in each area:

Policy Area	Issues
• Shared Data Bases--	What organization(s) has the responsibility for Budgeting, ensuring proper access and control, and verifying the quality and timeliness of information contained within data bases; what is to be shared and with whom?
• Multiple Retrieval Languages and Data Base Management Systems--	Should there be a Community standard language, since this is a major interface problem to the analysts? Is it feasible to develop and maintain a language translator? What organization is responsible for maintenance required for operational use of these retrieval systems?
• Data Standards--	Does the Community need standards and is the Community willing to allocate the resources required? If so, what approach should be used (solve technically, use Committee, use contractors, use in-house personnel)?
• Communications Network Interfaces--	What organization has management responsibility for defining communication standards (line protocols; gateway interfaces, etc.) and evaluating competing network technologies?
• Training and User Aids--	What organization is responsible for training Community users and what is the cost to the Community, and is present investment adequate?
• Experimentation and Research--	What organization has responsibility for coordinating overall

	experimentation and research and avoiding duplication? By what means are the results passed to the Community?
• Security--	What organization is responsible for developing an authoritative reference on ADP security? How can an individual organization's security procedures be effectively inspected and accredited? What are the multi-level compartmentation problems associated with ADP security?

PLANNING FOR A COMMUNITY-WIDE SYSTEM

4.5 Development of a Community-wide system is a complex process involving centralized direction and interagency coordination and planning. Some of the steps which converge on a master plan for developing such a system are listed below. What is contained in these steps, and how they relate, is illustrated in the suggested flow diagram, or "plan for the plan," shown in Figure 4.1.

- Identify current information system capabilities and existing hardware configurations
- Evaluate current information handling capabilities
- Study present organization of Community ADP elements
- Improve management control of ADP elements in the Community
- Perform top-down information requirements study

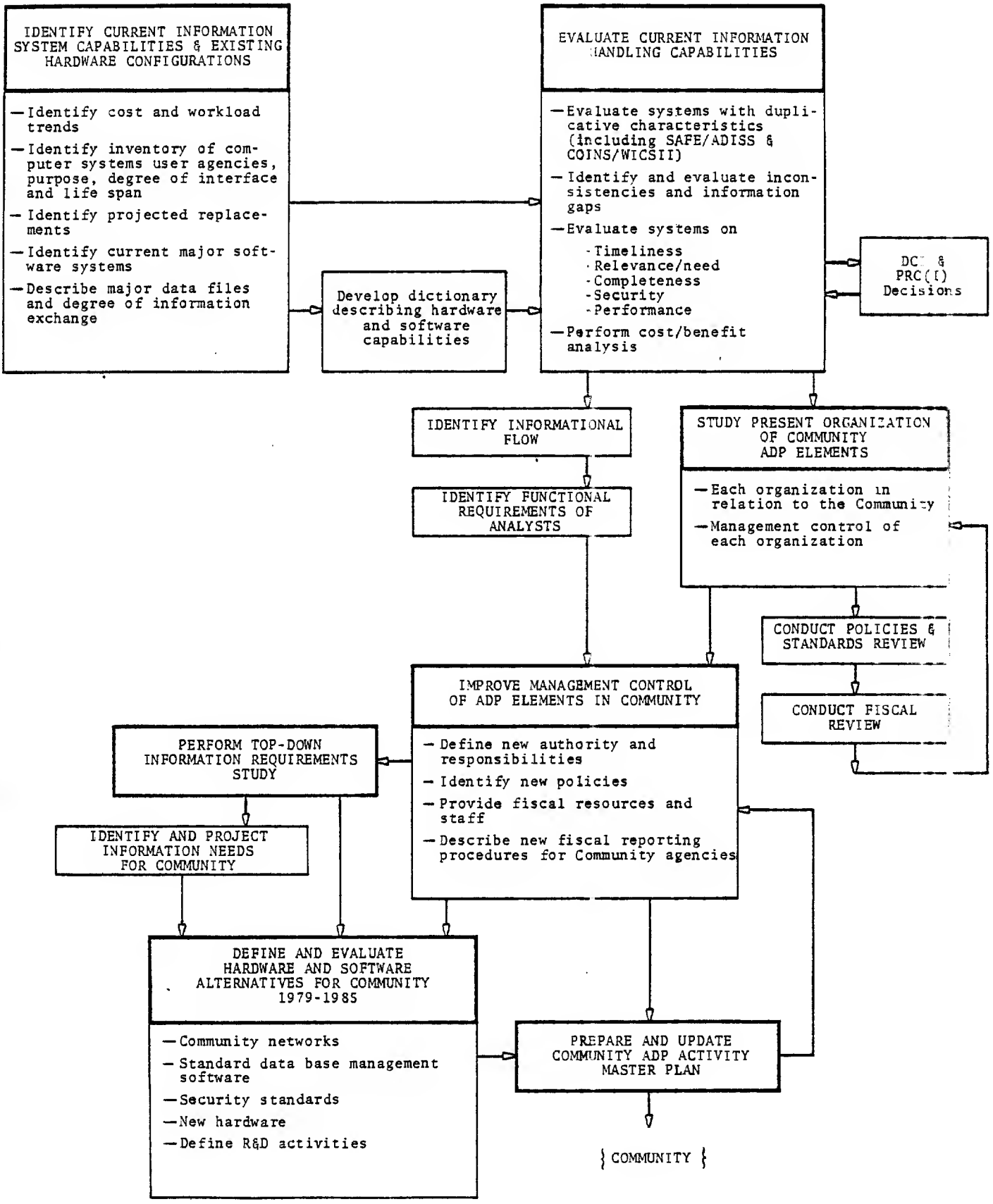


FIGURE 4.1

PLANNING FOR A COMMUNITY-WIDE INFORMATION SYSTEM

- Define and evaluate Community hardware and software alternatives
- Prepare and update Community ADP master plan.

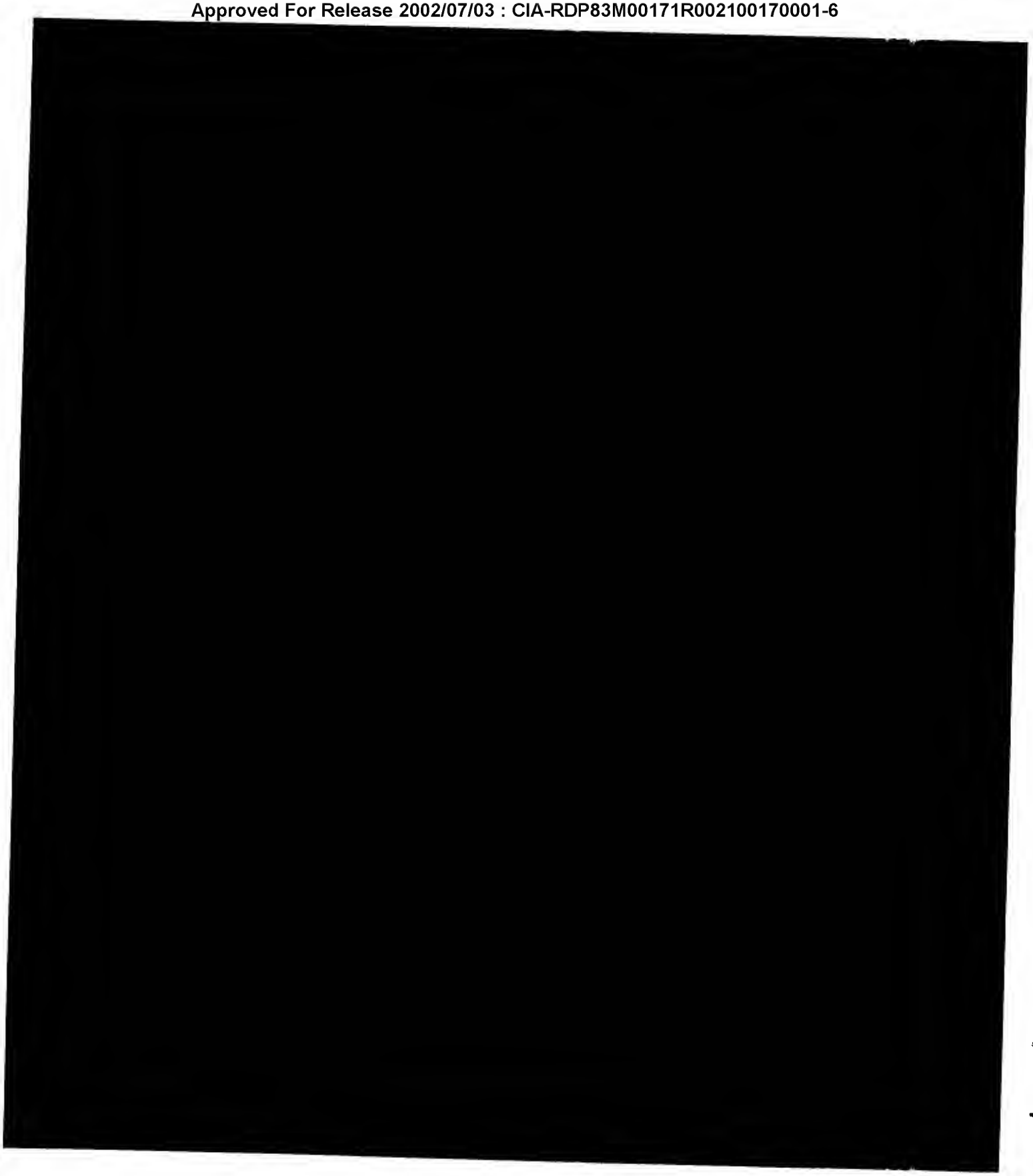
IMPLEMENTATION

4.6 Currently, the DCI Intelligence Information Handling Committee is charged with the responsibility to serve as the catalyst for bringing about Community-wide ADP planning and implementation. The available funds, manpower, and the expertise required to perform this crucial responsibility are not adequate to allow the IHC to effectively execute this stated responsibility. Further, the Committee concept has demonstrated little progress in addressing the most basic Community-wide ADP problems (i.e., data standards, security issues, etc.).

4.7 To provide for future integration and planning efforts, it would be valuable to identify a central focal point to coordinate the development of new hardware and software systems to reduce redundancies and to maximize utility across the Community. At the same time, reporting and budgeting policies need to be changed to identify allocations of ADP resources, beyond the limited accountability found today.

4.8 One approach would be to dissolve the IHC and to create a new "Office" with line responsibilities. This office could reside within the IC Staff, or perhaps be answerable to the DCI directly, since ADP integration efforts are so fundamental to Community-wide integration as a whole. This office would be charged with ADP Community-wide planning and implementation and be the central focal point within the Community for the coordination of new major software systems, reducing the possibility

of major system redundancy. As part of its responsibilities, the office would have budgetary authority over ADP activities and related Community R&D programs. This new office would resolve the limited and questionable accountability for ADP resource expenditure by developing and implementing new reporting and budgetary policies.



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Approved For Release 2002/07/03 : CIA-RDP83M00171R002100170001-6